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REVIEWS ARKAD'YEV'S WORK ON HIS 65th BIRTHDAY

Engr S. D. Klement'yev

Professor V. K. Arkad'yev, Corresponding Member of the Academy of Sciences USSR, is the present director of the Electromagnetism Laboratory and the Chair of Theoretical Principles of Electrical Engineering in Moscow State University. He was born in 1884 in Moscow, and received his education at the Moscow University Faculty of Physics and Mathematics.

At the turn of the century, he was already active in research on magnetization of iron, steel and nickel. In 1913 Arkad'yev published an article, "The Theory of the Electromagnetic Field and Ferromagnetic Metals," and several other articles on related subjects.

In 1915 Arkad'yev organized a Physicochemical Laboratory which was the first to formulate scientific principles for combatting toxic volatile agents (a book on this subject was published by him in Moscow in 1917). In the course of his work, he invented a number of instruments for use in gas enterprises: anemometer, rheometer for determining gas velocities in pipes, warning devices against gas attacks, etc.

In 1927 Arkad'yev was elected a corresponding member of the Academy of Sciences USSR. From 1923 to 1931 he directed the Magnetometric Division of GEKI, which is now VEI (All-Union Electrical Engineering Institute).

In 1921, V. K. Arkad'yev organized a scientific physics club ("Magnetic Colloquium") in Moscow and directed its activity. The club's experimental work was conducted at the Physics Institute of Moscow University until 1933. Originally, this organization was called the Moscow Magnetic Laboratory. In 1932, the laboratory was renamed the Electromagnetism Laboratory and in 1933 it was incorporated into Moscow State University. Arkad'yev organized the Chair of Theoretical Principles of Electrical Engineering at the laboratory in 1939. The works of the laboratory are known both in the USSR and abroad. Up to 1949, the laboratory had

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published about 300 works. The most widely known of these are: the work on microwaves done by A. A. Glagoleva-Arkad'yeva, and the work on magnetic spectra representing anomalies in the magnetization of iron by alternating fields of definite periods; the latter work constituted the groundwork for the new subject founded by Arkad'yev, "magnetic spectroscopy."

The main results of Arkad'yev's work on electromagnetism are contained in his report, "Electromagnetic Processes in Metals" (1935 - 1936). In 1934, Arkad'yev worked out the experimental theoretical principles for obtaining images on paper with the aid of centimeter waves ("stiktography"); in 1940, he demonstrated a method for radioscopy of particles from insulators and semiconductors using centimeter waves. In 1942 - 1943, he developed the theory of surface effect in various bodies, particularly crystalline bodies, and, in connection with this, demonstrated the working principle of a magnetic flux compressor for obtaining very strong magnetic fields. By 1944, he was engaged in the study of the equilibrium of magnetized bodies and their relative periodic motion.

Recently, V. K. Arkad'yev has studied the problem of the "floating" of a magnet over a superconductor and of a conductor in a high-frequency field. He suggested a very simple method for demonstrating V. F. Mitkevich's idea, upon which the fluxmeter was based, and has also studied the problem of the relationship of present-day works on nuclear magnetic resonance to his discovery of magnetic spectra in 1912.

Among Arkad'yev's students are members of the Academy of Sciences and professors of higher educational institutions: V. A. Vvedenskiy, V. A. Korchagin, N. S. Akulov, Ye. I. Kondorskiy, K. M. Polivanov, and many others.

Arkad'yev has published around 100 scientific works and an equal number of articles and notes.

He also edited the symposiums of the Department of Technical Sciences, Academy of Sciences USSR, which were published from 1938 to 1946, including: "Problems of Metals in Electrical Engineering," "Practical Problem of Electromagnetism," and "Problems of Ferromagnetism and Magnetodynamics."

V. K. Arkad'yev has been awarded the Order of the Red Banner of Labor and many medals.

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